

Figure 3.

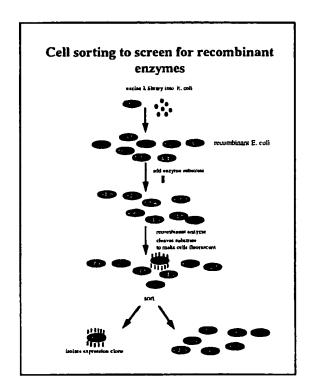
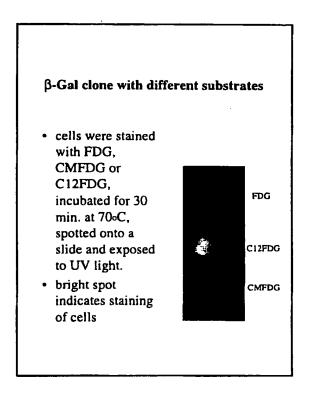
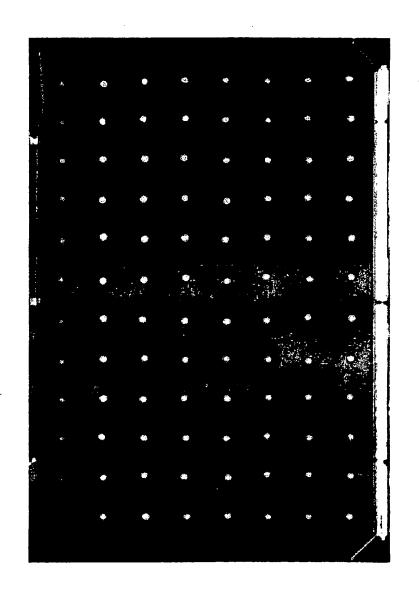


Figure 4.



E. coli expressing β -Gal from Sulfulobus spec. was grown over night. Cells were centrifuged and substrate was loaded with deionised water. After 5 min. cells were centrifuged and transferred into HEPES buffer and heated to 70°C for 30 min.. Cells were spotted onto a slide and exposed to UV light.

Figure 5



$$R_1$$
 O-Fluor. H_2 O R_1 O + O-Fluor. H_2 O

Principle type of fluorescence enzyme assay of deacylation.

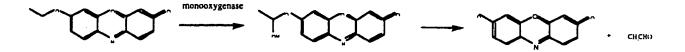


Staining of $\beta\text{-galactosidase}$ clones from the hyperthermophilic archaeon Sulfolobus solfataricus expressed in E.coli using $C_{12}\text{-FDG}$ as enzyme substrate.

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Synthesis of 5-dodecanoyl-aminofluorescein-di-dodecanoic acid

Rhodamine protease substrate.



Compound and process that can be used in the detection of monoxygenases

Waste.

New Enzyme Enzyme **Desired Combinatorial Enzyme Development** ID via Mutation / П Enz. 33' Enz. 2' Enz. (Natural + Non-natural Evolution) **Evolution Improve** Directed Nature **ID via Enzyme** Enz. 33 Enz. 2 Enz. 7 Enzyme Search Select Nature **Throughput** Enzyme 10 **ID** via High Enzyme n **Enzyme 6** Enzyme 5 Enzyme 8 Enzyme 9 Enzyme 2 Enzyme 3 Enzyme 4 Enzyme 7 Enzyme **Enzyme** Library · NA Library

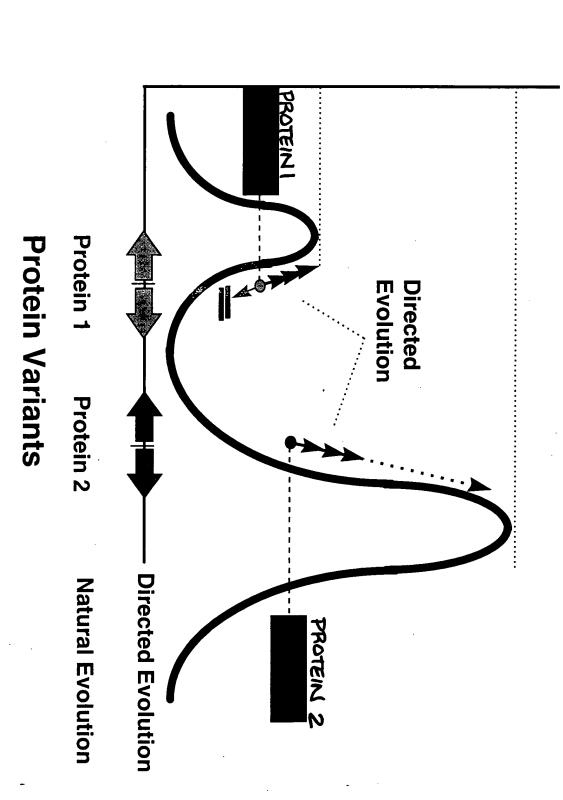
Selection

Characterization

Screening

Bypassing Barriers to Directed Protein Evolution

(Barrier = Capacity limit of directed evolution system)



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